

Enhanced Vapor Recovery

August 31, 1999 Workshop

Monitoring and Laboratory Division

Compliance Division

Office of Legal Affairs

California Air Resources Board

California Environmental Protection Agency

www.arb.ca.gov/vapor/evr/evr.htm

Agenda

- Introduction
- June 99 Board Item Update
- EVR Proposal
 - Program Improvements
 - In-Station Diagnostics
 - ORVR Compatibility
- Emission Reductions
- Cost-Effectiveness
- EVR Schedule

Current Vapor Recovery Activities

- Joint ARB/district balance system inspections
- Enforcement
 - Parts houses inspections planned
- Considering for decertification
 - OPW nozzle
 - VST hose
 - Co-axial Phase I connectors

June 24, 1999 Board Meeting

■ Amendments approved to:

- Phase II Certification (CP-201)
- Dynamic Backpressure (TP201.4)
- A/L Test (TP-201.5)
- Liquid Removal (TP-201.6)

■ 15-day Comment period August 30 through September 14

Program Improvements

- Phase I Certification
- Phase II Certification
- Administrative Changes

Phase I Certification

- Increase to 98% efficiency
- Phase I coupler specification
- Consider drain valve alternatives

New Standard for Assist Systems

- Require underground storage tank to be maintained at negative pressure
- Addresses pressure-related fugitives
- Minor leaks not an issue
- Resolves ORVR compatibility
- Simple to monitor

Phase II Certification

- ***Include pressure-related fugitives as calculated over operational test***
- Substitute emission limit for efficiency
 - 0.42 lbs/1000 gallons
- Include performance verification test frequency in EO as demonstrated during operational test
- Increase stringency of operational test .

Proposed Changes to Certification Operational Test

- Increase from 90 days to 180 days minimum
- Pressure monitoring throughout test period
- ***Ongoing compliance with leak decay test requirements***
- Maintenance only as specified and approved in application

New Component Specifications

- ***Goal: Reduce leak locations***
- ***Manifold all vents to one P/V valve***
- ***One nozzle per fueling point
(uni-hose configuration)***

Pressure Drop Specifications

- Limit for underground piping and dispensers
- Limit for entire system
- Pressure drop ranges for components (include in certification application)

Liquid Retention

- Gasoline retained in
 - product side of nozzle
 - vapor passage of nozzle
 - primary shut-off chamber of nozzle
 - vapor passage of coaxial hose
- Liquid can evaporate, if does not spill

New Liquid Retention Standard

- 100 ml/1000 gallon
- Corresponds to 2% efficiency loss
- “Spitting” limit: 1.0 ml/nozzle/test
- Defined by new test procedure:
TP-201.2E

New Warranty Requirements

- Meet performance specifications for warranty period
- Outlined in EO for each system
- Example: pressure/flow specifications

Limited Term Certification

- Four years
- Automatically renewed without additional testing unless deficiencies documented
- If deficiencies, will work with manufacturer to resolve

Certification of Replacement Parts

- Limited term certification without ability to renew (no automatic renewal)
- No continued use after lapse of limited term
- Length of limited term linked to period remaining for continued use of system

Administrative Changes

- Certification application form
 - test data
 - maintenance manual
 - plan for training installers
- Summary of certification document
- Summary of Title 17 defects in EO

New and Revised Methods

- Amend CP-201 (Certification)
- Amend TP-201.1, TP-201.1A (Phase I Efficiency)
- Amend TP-201.2 (Phase II Efficiency)
- Amend TP-201.2B (Flow vs. Pressure)
- ***New TP-201.2D (ORVR Compatibility)***
- New TP-201.2E (Liquid retention)
- ***New TP-201.2F (Fugitives)***

In-Station Diagnostics

■ Goals:

- Periodic monitoring to ensure
 - vapors collected at nozzle
 - vapors stay in underground storage tank
 - processor operates properly
- Signal when problem occurs
- Shut-down dispensing if corrective action is not taken

Vapor Collection Monitor for Assist Systems

- Audible alarm when $A/L < 25\%$
- Shut-down if:
 - 2 or more A/L of zero in 24 hours
 - $A/L < 25\%$ for 2 consecutive fuelings
 - 5 $A/L < 25\%$ in 24 hours

Vapor Retention Verification for Assist Systems

- Audible alarm when $P > -0.1$ inch w.c. for:
 - more than 1 consecutive hour
 - more than 3 hours in 24 hour period
- Shut-down of dispensing if corrective action not taken within allowable time

Vapor Retention Verification for Balance Systems

Audible alarm when:

- $P > 0.25$ inch w.c. for
 - more than 1 consecutive hour
 - more than 3 hours in 24 hour period
- $P > 1.0$ inch w.c. for more than 1 hour in any 24 hour period
- Failure to maintain leak test criteria
- Shut-down of dispensing if corrective action not taken within allowable time

Processor Monitoring

- Failure criteria developed for each individual system
- Audible alarms
- Shut-down of dispensers if not corrected in timely manner

Data Recording, Storage and Reporting

- Electronic recording
- Data points recorded every 5 minutes (min)
- Data points stored for 12 months (min)
- Hard copy of all data points and failures for last 12 months be made available upon request

ORVR Compatibility

- Draft test report on web page for two assist system tests
- Pressure monitoring planned for balance system
- No additional testing for assist systems likely at this time
- ***ORVR Compatibility requirement will be included in EVR staff proposal***

Emission Reductions

- Meet SIP settlement commitment
- Justify EVR proposal
- Determine cost-effectiveness

SIP Settlement Emission Reductions

Emission Category		Estimated Emission Reductions (SCAB tons/day in 2010)	
Phase I (working)	95% control	0	
	96% control	0.6	
	97% control	1.2	
	98% control	1.8	1.8
	99% control	2.4	
ORVR Credit			
assume 54.9% ORVR process rate in 2010	0.2 g/gal	1.9	1.9
Spillage			
0.7 lb/1000 gal (1994 SIP)		0	
0.42 lb/1000 gal (current standard)		2.3	2.3
TOTAL:			6.0

Additional Emission Reductions (preliminary estimates)

Statewide 2010 TOG Em. Red.		
Emission Category	(tons/day)	Comments
Pressure-related fugitives	21	new standard for EVR
Low A/L ratios	6	ISD A/L monitor will eliminate
Liquid Retention (psuedo-spillage)	4	new standard for EVR
TOTAL:	31	

Cost-Effectiveness Data Needed

- Need information on EVR costs
 - some data already from WSPA and equipment manufacturers
- ARB contact: Floyd Vergara
 - (916) 327 - 1503
 - fvergara@arb.ca.gov

Cost Effectiveness of Recent ARB Regulations

ARB Regulation	Cost-Effectiveness \$/lb Pollutant Reduced
Consumer Products Mid-term 2(10/99)*	\$6.30
Consumer Products Mid-term 1 (7/97)*	\$7.10
On-Road Motorcycles (12/98)**	\$5.60
Small Off-Road Engines (3/98)**	\$9.63
Marine Engines and Personal Watercraft (12/98)**	\$3.57
* per pound of VOC or HC, ** per pound of HC+NOx	

EVR Schedule

■ Workshops:

- Thursday, September 30, 1999?
- Tuesday, November 9, 1999

■ Staff report: October 22

(Start of 45-day comment period)

■ Board hearing December 9, 1999